

What is claimed is:

1. A plasma display apparatus with low power consumption and high speed response comprising:

a plasma display panel driven by a discharge sustain voltage in the form of pulses;

an analog-digital converter digitizing an image signal and producing a digitized image signal;

a plasma display panel drive unit converting the digitized image signal into scanning pulses and data pulses for driving the plasma display panel and outputting the scanning and data pulses to the plasma display panel;

a power supply unit supplying the discharge sustain voltage to the plasma display panel drive unit; and

a controlling unit adjusting an output gain of the analog-digital converter in response to a variation of the discharge sustain voltage of the power supply unit.

2. The plasma display apparatus of claim 1, wherein the controlling unit comprises:

a voltage sensing unit sensing the variation of the discharge sustain voltage and outputting a sensed voltage;

a voltage comparison unit comparing the sensed voltage from the voltage sensing unit with a predetermined voltage and inputting comparison results; and

a gain adjusting unit adjusting the output gain of the analog-digital converter depending on the comparison results.

3. The plasma display apparatus of claim 2, wherein the voltage sensing unit includes a first resistor and a second resistor connected in series between the discharge sustain voltage and a ground.

4. The plasma display apparatus of claim 3, wherein the voltage comparison unit comprises:

an operational amplifier inputted with a predetermined voltage at its first input terminal;

a third resistor connected between a node commonly connected to the first resistor and the second resistor and a second input terminal of the operational amplifier; and

a fourth resistor connected between an output terminal of the operational amplifier and an input terminal of the gain adjusting unit.

5. The plasma display apparatus of claim 4, wherein the gain adjusting unit comprises:

a data storage unit storing a gain value of the analog-digital converter; and

a microcomputer supplying the predetermined voltage value to the second input terminal of the operational amplifier and outputting the gain

value stored in the data storage unit to the analog-digital converter in response to the comparison result of the voltage comparison unit.

6. The plasma display apparatus of claim 5, wherein the operational amplifier includes an analog operational amplifier.

7. The plasma display apparatus of claim 6, wherein the microcomputer stores the predetermined voltage inputted to the operational amplifier.

8. The plasma display apparatus of claim 7, wherein the discharge sustain voltage of the power supply unit is reduced with an increase of a luminance level of the image signal from the plasma display panel drive unit to the plasma display panel.

9. The plasma display apparatus of claim 8, wherein the output gain of the analog-digital converter is reduced with the increase of the luminance level of the image signal inputted to the plasma display panel.

10. The plasma display apparatus of claim 9, further comprising: a scaler positioned between the analog-digital converter and the plasma display panel drive unit and converts the digitized image signal to an image size appropriate to the plasma display panel.

11. A method for controlling a power of a plasma display apparatus comprising a plasma display panel driven by a discharge sustain voltage comprising the steps of:

digitizing an image signal and outputting a digitized image signal; and

adjusting an output gain of the digitized image signal in response to a variation of the discharge sustain voltage.

12. The method for controlling the power of the plasma display apparatus of claim 11, wherein the step of adjusting the output gain comprises the steps of:

sensing the variation of the discharge sustain voltage and outputting a sensed voltage;

comparing the sensed voltage with a predetermined voltage and outputting a comparison result; and

adjusting the output gain of the digitized image signal depending on the comparison result.

13. The method for controlling the power of the plasma display apparatus of claim 11, wherein the discharge sustain voltage is reduced with an increase of a luminance level of the digitized image signal.

14. The method for controlling the power of the plasma display apparatus of claim 11 further comprising converting the digitized image signal to an image size appropriate to the plasma display panel.

15. The plasma display apparatus of claim 1 further comprising a decoder unit receiving an externally inputted image signal and outputting the image signal to the analog-digital converter.

16. The method for controlling the power of the plasma display apparatus of claim 11 further comprising converting an externally inputted image signal into the image signal and outputting the image signal for digitizing.